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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,046	12/05/2001	Michael E. Lewis	72255/02776	1708
23380	7590	09/26/2006		
TUCKER, ELLIS & WEST LLP 1150 HUNTINGTON BUILDING 925 EUCLID AVENUE CLEVELAND, OH 44115-1414			EXAMINER NGUYEN, HANH N	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,046

Applicant(s)

LEWIS, MICHAEL E.

Examiner

Hanh Nguyen

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 7-10, 17, 19-27, 32-37, 42-45, 50-55, 60 and 61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7-9, 19-24, 26, 27, 32-35, 43-45, 50 and 53 is/are rejected.
- 7) ☒ Claim(s) 10, 17, 25, 36, 37, 42, 51, 52, 54, 55, 60 and 61 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office action is in response to applicant's RCE filed on 8/7/06. Claims 1, 2, 7-10, 17, 19-27, 32-37, 42-45, 50-55, 60 and 61 are pending in the application. Applicant has amended claims 10, 26 and 44 to correct misspelled errors. The 112 first paragraph rejection of claims 1, 2, 7-10, 17, 19-27, 32-37, 42-45, 50-55, 60 and 61 are withdrawn based on the description of specification on page 7, lines 12-20.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The specification, on page 7, lines 12-16 discloses "antenna array patterns can be used by access point to place more than one client on the channel at the same time on the same frequency" while page 8, lines 15-19 discloses "the AP's in the network allow network access more than one client per TDMA slot".

According to claims 1, 19, 26 and 44, it is not clearly indicated that whether the channel is identified as a "time slot" channel or the channel includes the time slot.

Claim Objections

Claims 17, 42, 60 are objected to because of the following informalities: the last limitation of this claim is not preceded by "and". Appropriate correction is required.

In claim 23, it is suggested 'band with' be rewritten as "bandwidth".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 7-9, 19-24, 26, 27, 32-35, 43-45, 50 and 53 are rejected under 35 USC 103(a) as being unpatentable over Kasapi et al. (US pat. 6,999,771 B1) in view of Velazquez et al. (US pat. 6,593,880 B2).

In claims 1, 19, 26 and 44, Kasapi et al. discloses a Spatial Division multiple access method, in fig.2, steps 210, 212, which determine the best pairing for existing subscribers to be assigned to a channel concurrently (determining a first client and a second client from a plurality of clients that can use a channel concurrently; see Abstract & col.12, lines 40-45). As the best pairing of subscribers is determined, one of the subscribers of the best pairing is ordered to change channel assignments to the channel associated with the other of the best pairing (scheduling the first client and the second client use the same channel concurrently (see col.12, lines 45-50). Kasapi et al. further discloses, in fig.3, step 322, that pairs of subscribers may be grouped to fill vacant slot when the time arrives (col.16, linesd 28-35; the first client and second client use the same time slot). Kasapi et al. further discloses a central controller (Fig.1, SDMA controller 72) for controlling network access of an access point (fig.1, Base station 100) having plurality of subscribers (subscribers 20, 22 and 24). See col.6, line 65 to col.7, line 10. But Kasapi et al. does not disclose the first client is associated with a first access point and the second client is associated with a second access point.

Velazquez et al. discloses a SDMA system which includes plurality of cells 10. Each cell 10 has a base station 20 and respective mobile stations 30(see fig.1). Therefore, it would have been obvious to apply the multiple cells feature of Velazquez et al. so that plurality of base stations, each having respective subscribers are applied in Kasapi et al. to assign subscribers from different base stations to use the same slot and the channel concurrently. The motivation is to have free resources for other subscribers.

In claim 20, with the discussion of claim 19 above, the limitation has been described.

In claim 21, Kasapi et al. further discloses the management system (SDMA controller 72) comprising an ethernet switch (switching network 58). See fig.1.

In claims 2, 7, 27, 32, 45 and 50, Kasapi et al. further discloses monitoring a plurality of network parameters wherein the step of monitoring network parameters comprises monitoring one of the group consisting of time division, buffering, bandwidth, frequency, space and throughput (see col.9, lines 5-15; analyzing characteristics associated with subscribers (see col.9, lines 5-15) including buffering subscriber data (col.9, lines 25-30); packet collision history (see col.9, lines 32-45); space (dynamic range; col.9, lines 5-12); throughput (signal strength indicator ; col.9, lines 8-10); bandwidth (frame error rate; col.9, lines 8-10); frequency and time slot (col.7, lines 45-50). Kasapi et al. further discloses adjusting client access to specific slot (changes can be made to enhance the best success of a call grouping such as change are made at the time of a slot switch; see col.14, lines 30-37).

In claims 35 and 53, other than the respective discussion of claim 1 above, it is a well-known skill in the art that the SDMAP 48 estimates directions of arrival (angle of arrival) and

distance from the base station to subscriber (determining location for clients). (See US pat. 5,642,353; col.15, lines 15-22).

In claims 8, 33, Kasapi et al. does not disclose controlling direction of at least one adaptive antenna array to allow simultaneous access between interfering clients. Velazquez et al. discloses a SDMA system which employs directive antenna array and knowledge of position of users to form narrow antenna beams to distinguish desired users and undesired users to reduce interference. Each user is free from co-channel interference (see abstract) Therefore, it would have been obvious that with the combination of Velazquez with Kasapi et al. interfering clients may be simultaneously access to the system.

In claims 9 and 34, the limitations of these claims have been addressed in claim 1.

In claim 22, Kasapi et al. discloses a high speed network ethernet media access controller for interfacing with a network (switching network 58 interfacing with WAN 56; see fig.1); a respective plurality of access point ethernet media access controllers for sending and receiving data from the respective access points (multichannel transmitter 70 and receiver 42; see fig.1); wherein the processor is a dedicated processor for implementing the algorithm and regulating data flow between the network and the respective access points (SDMAP 48 is a processor that uses signal measurements 44 along with other data to select a channel; see col.7, lines 15-22).

In claim 23, Kasapi et al. does not disclose the enhanced ethernet switch operates Reservation protocol and subnet bandwidth management and is 801.1P and 801.1Q compliant. Using the switching network 58 in compliant with 801.1P and 801.1 Q and reservation protocol is well-known skill in the art. Therefore, it would have been obvious to apply the switching network 58 in compliant with 801.1P and 801.1 Q and reservation protocol in Kasapi et al.

In claims 24 and 43, Kasapi et al. does not disclose the algorithm can be implemented by at least one of root near square error program, and a artificial intelligence scheme and network calibration routine. Using the of root near square error program, and artificial intelligence scheme is well-known skill in the art. Therefore, it would have been obvious to apply root near square error program, artificial intelligence scheme and network calibration routine in the Kasapi et al.

Allowable Subject Matter

Claims 10, 17, 25, 36, 37, 42, 51, 52, 54, 55, 60 and 61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claims 10, 36, 37, 51, 52, 54 and 55, Kasapi et al. and other prior art do not disclose controlling the direction of an adaptive antenna array associated with one of the group consisting of the first access point and the second access point to allow simultaneous access between the first client and the second client based on their respective location determined during the monitoring packet angle of arrival information; wherein the controlling the direction uses one of the group consisting of adaptive beam forming and adaptive null forming to compute an orthogonal antenna array pattern.

In claims 17, 42 and 60, Kasapi et al. and other prior art do not disclose instructions for reporting to a main controller received signal strength and direction of arrival detected by the respective other access points; instructions for using the main controller to determine a network access topology to reduce multipath interference between clients.

In claim 25, Kasapi et al. and other prior art do not disclose an algorithm-responsive antenna control for varying position of at least one adaptive directional antenna associated with one of the group consisting of the first access point and the second access point, to alternately select clients from one of the group consisting of the first plurality clients and second plurality of clients for varying at least one network parameter.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yun et al. (Us pat. 5,886,988);

De Seze (Us pat. 5,894,472);

Roy, III et al. (US pat. 5,642,353).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Nguyen whose telephone number is 571 272 3092. The examiner can normally be reached on Monday-Friday from 8:30AM to 4:30PM. The examiner can also be reached on alternate

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571 272 7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2616

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hanh Nguyen

A handwritten signature in black ink, appearing to read 'HNguyen'.

**HANH NGUYEN
PRIMARY EXAMINER**